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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,423

01/30/2006

Arunendra Nath Lahiri Majumder

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EXAMINER

PROUTY, REBECCA E

ART UNIT

PAPER NUMBER

1652

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,423	<b>Applicant(s)</b> MAJUMDER ET AL.	
	<b>Examiner</b> Rebecca E. Prouty	<b>Art Unit</b> 1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/1/10 has been entered.

Claim 2 has been canceled. Claims 1 and 3-8 are still at issue and are present for examination.

Applicants' arguments filed on 3/1/10, have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Claims 1 and 3-5 are objected to because of the following informalities:

- all references to sequence identifiers should use the notation SEQ ID NO:
- the word "a" should be inserted following "encoding in line 3 of claim 1
- the word "sequencing" is misspelled in claim 3

Art Unit: 1652

- "encoded by a nucleotide" should be "encoded by the nucleotide" in line 7 of claim 3.
- the phrase "to produce expression plasmids" in claim 5 should be "to produce an expression plasmid" and
- the phrase "said plasmids are" in claim 5 should be "said plasmid is"

Appropriate correction is required.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 lacks antecedent basis for "the expressed PINO1 proteins" as claim 5 does not actually recite an expression step but merely the transformation of the plasmid into a host cell. It is suggested that claim 5 be amended to replace "for obtaining an expressed PINO1 gene product" with an active step of culturing the transformed host strain to express the PINO1 gene product.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the

Art Unit: 1652

art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhuri et al. (1996) in view of Yoshida et al.

Raychaudhuri et al. teach the isolation of the salt tolerant *Porteresia coarctata* myo-inositol 1-phosphate synthase but do not teach methods of isolating and expressing the cDNA encoding this protein

Yoshida et al. teach methods of isolating the cDNA encoding the *Oryza sativa* myo-inositol 1-phosphate synthase comprising reverse transcribing mRNA from the rice plant and PCR amplification followed by insertion of the full length cDNA into a suitable vector and sequencing of the cDNA to determine the sequence of the gene and its encoded protein.

Therefore, it would have been obvious to one of ordinary skill in the art to isolate the cDNA of the myo-inositol 1-phosphate synthase of Raychaudhuri et al. using the methods of

Art Unit: 1652

Yoshida et al. and to further express the encoded protein. One of ordinary skill in the art would have been motivated to do so as the many advantages of recombinant production of useful proteins are well known within the art as are recombinant methods of expressing the genes. These advantages include the ability to produce much larger quantities of the protein, being able to produce the protein in more easily handled organisms, reducing the number of steps necessary for the purification of a protein and producing the protein in a purer form by using an organism that does not include naturally occurring contaminants of the protein. Furthermore, while Yoshida et al. do not teach the use of the pET20B(+) vector, and *E. coli* BL-21 (DE 3) host recited in claims 4 and 5, these are a well known commercially available expression vector and host cell and thus it would have been obvious to one of skill in the art to select these as a suitable vector and host cell. Furthermore, while the references do not recite the specific solubilization buffer of claim 6, this buffer differs from that disclosed by Raychaudhuri et al. for the isolation of the *Porteresia coarctata* myo-inositol 1-phosphate synthase only in the inclusion of 8M urea. It is well known in the art that proteins expressed in *E. coli* often are produced as inclusion bodies which need to be resolubilized and that buffers suitable for the enzyme which

Art Unit: 1652

include 8M urea are generally useful for doing so. Therefore, it would have been obvious to use this buffer for the resolubilization of the protein following expression. This rejection is now applied to claims 1, 7 and 8 as well as claims 3-6 in view of the affirmation by the CAFC of a substantially similar rejection in *In re Kubin* 90 USPQ2d 1417 (Fed. Cir. 2009).

Applicants argue that the claims are not obvious because it is a discovery of applicants that the nucleic acid of the *Porteresia coarctata* salt-tolerant L-myo-inositol 1-phosphate synthase is different from that of *Oryza sativa*. However, this is not a discovery of applicants but what an ordinary skilled artisan would have expected. A skilled artisan would be aware that nucleic acids encoding similar proteins in related species although highly homologous are virtually never identical. Thus a skilled artisan would have expected that the nucleic acid encoding the *Porteresia coarctata* salt-tolerant L-myo-inositol 1-phosphate synthase would be structurally related to but not identical to the nucleic acid encoding the *Oryza sativa* L-myo-inositol 1-phosphate synthase. Furthermore, while it is acknowledged that the nucleotide sequence of SEQ ID NO:1 would not have been obvious to one of ordinary skill in the art, nucleotide sequences, *per se*, are simply chemical formula and

Art Unit: 1652

are not patentable subject matter. It is the isolated nucleic acids that have this chemical formula which are patentable subject matter. However, in this case, the specific claimed nucleic acid, i.e., the nucleic acid produced naturally within *Porteresia coarctata* and encoding the salt-tolerant myo-inositol synthase disclosed by Raychaudhuri et al. would have been obvious to one of ordinary skill in the art. No knowledge of the nucleic acid sequence encoding the protein disclosed by Raychaudhuri et al. is necessary for a skilled artisan to use the methods of Yoshida et al. with nucleic acid from *Porteresia coarctata*. Doing so will inherently result in the isolation of a nucleic acid comprising SEQ ID NO:1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca E. Prouty whose telephone number is 571-272-0937. The examiner can normally be reached on Tuesday-Friday from 8 AM to 5 PM. The examiner can also be reached on alternate Mondays

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached at (571) 272-0811. The fax phone number for this Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on



Application/Control Number: 10/538,423

Page 8

Art Unit: 1652

access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Rebecca Prouty/  
Primary Examiner  
Art Unit 1652